Amendments to the Claims

The following listing of the claims replaces all previous listings.

Please amend claims 1, 3-5, 15, 21, 26, 28, 30, 31, and 33, cancel claim 45, and add new claims 46 and 47 (from original claims 28 and 32, respectively).

1. (currently amended) A method for quantitatively assaying ~~one or more~~ a target ~~molecules~~ molecule in a first sample, comprising:
   (a) adding to the first sample, a preparation of a nucleic acid aptamer specific for ~~each~~ the target molecule;
   (b) allowing substantially all of the target ~~molecules~~ molecule in the first sample to bind with the aptamer;
   (c) separating unbound aptamer from the first sample by contacting the sample of step (b) with immobilized ~~ligands~~ ligand, thereby binding the ~~ligands~~ ligand to unbound aptamer, so as to recover a second sample of aptamer bound to target ~~molecules~~ molecule; and
   (d) using a quantitative replicative procedure comprising a replicative polymerase reaction to determine a quantity of aptamer specific for ~~each~~ the target molecule in the second sample and therefore related to the concentration of target molecule in the first sample.

2. (previously presented) A method according to claim 1, wherein the nucleic acid aptamer is selected from the group consisting of single-stranded DNA, double-stranded DNA, single-stranded RNA, double-stranded RNA and chemical modifications thereof.

3. (original) A method according to claim 1, wherein the target molecule is present in the sample at molar concentrations less than their dissociation constants with respect to the aptamers.

4. (original) A method according to claim 1, wherein the target molecule is present in the sample at molar concentrations equal to or greater than their dissociation constants with respect to the aptamers.

5. (currently amended) A method according to claim 1, wherein the target molecule ~~are~~ is a low abundance ~~molecules~~ molecule.

6. (currently amended) A method according to claim 1, where the target ~~molecules include~~ molecule includes a biological ~~macromolecules~~ macromolecule.

7. (currently amended) A method according to claim 6, wherein the biological ~~macromolecules are~~ macromolecule is selected from the group consisting of a protein, a lipid, a polysaccharide or combinations thereof.

8. (currently amended) A method according to claim 1, wherein the target ~~molecules include~~ molecule includes a small organic ~~molecules~~ molecule.

9. (currently amended) A method according to claim 8, wherein the small organic ~~molecules are~~ molecule is selected from ~~a~~ the group consisting of antibiotics, vitamins, steroids, and pesticides.

10. (currently amended) A method according to claim 1, wherein the target ~~molecules include~~ molecule includes an inorganic ~~molecules~~molecule.

11. (currently amended) A method according to claim 10, wherein the inorganic ~~molecules are~~ molecule is a metal.

12. (currently amended) A method according to claim 11, wherein the metal is selected from ~~a~~ the group consisting of metal ions, metal oxides, and metal complexes.

13. (original) A method according to claim 1, wherein the first sample is obtained from an animal subject.

14. (previously presented) A method according to claim 13, wherein the first sample is selected from the group of tissues consisting of organ tissue, muscle tissue, bone tissue, connective tissue, fetal tissue, and placental tissue.

15. (currently amended) A method according to claim 1, wherein the first sample is a biological fluid selected from the group consisting of blood, lymph, urine, sputum, joint fluid, spinal fluid, and saliva.

16. (original) A method according to claim 1, wherein the first sample is an environmental sample.

17. (currently amended) A method according to claim 16, wherein the environmental sample is obtained from a source selected from the group consisting of plants, water, food beverages ~~(~~including milk~~)~~, and industrial waste.

18. (previously presented) A method according to claim 1, wherein the immobilized ligand is immobilized on a support matrix selected from the group consisting of resins, beads, magnetic beads, gels, cellulose and silica.

19. (original) A method according to claim 1, wherein the immobilized ligand is immobilized on an affinity column.

20. (original) A method according to claim 1, wherein the quantitative replicative procedure is a quantitative polymerase chain reaction.

21. (currently amended) A method according to claim 1, wherein ~~measuring the amount~~ determining the quantity of aptamer bound to the target

molecule further includes denaturing the aptamer so as to separate the nucleic acid from the target ~~molecules~~molecule.

22. (currently amended) A method according to claim 21, wherein oligonucleotide primers are added to the sample after denaturing the aptamer from the target ~~molecules~~molecule.

23. (currently amended) A method according to claim 22, wherein determining the ~~concentration~~ quantity of aptamer includes determining a number of replicative cycles.

24. (currently amended) A method according to claim 6, wherein the target ~~molecules are antibodies~~molecule is an antibody.

25. (currently amended) A method according to claim 24, wherein the target ~~molecules include~~ molecule includes IgE.

26. (currently amended) A method according to claim 1, wherein the target ~~molecules include~~ molecule includes a plurality of antibody molecules belonging to different subclasses characterized by a difference in the hypervariable region of ~~the~~ each antibody.

27. (currently amended) A method according to claim 1, wherein the target ~~molecules are~~ molecule is a subclass of an antibody having a characteristic hypervariable region.

28. (currently amended) A method according to any of claims 24-25 or 27, wherein the aptamer binds to a constant region of the antibody and wherein the immobilized ligand is the constant region of the antibody for removing unbound aptamer from the sample.

29. (currently amended) A method according to claim 24, wherein the second sample contains antibody-bound aptamer, the second sample being divided into a plurality of aliquots, and a first aliquot of the second sample being assayed using a quantitative replicative procedure to determine ~~an amount~~ a quantity of antibody in the first sample.

30. (currently amended) A method according to claim 29, further comprising:

(a) contacting a second aliquot of the second sample with an immobilized ligand for binding an antibody with a first hypervariable region; wherein the antibody with a first hypervariable region is ~~one of the~~ a target ~~molecules~~ molecule in the first sample;

(b) recovering a third sample containing the aptamer bound to target ~~molecules~~ molecule excluding the antibody with the first hypervariable region;

(c) assaying the aptamer concentration in the third sample using the quantitative replicative procedure, so as to determine a difference in ~~an amount~~ a quantity of aptamer in the second sample and the third sample; and

(d) ~~obtaining a measure of an amount~~ determining a quantity of the antibody with the first
hypervariable region in the first sample from the difference.

31. (currently amended) A method according to claim 29, further comprising:

(a) contacting a plurality of aliquots of the second sample with ~~an~~ a plurality of immobilized ~~ligand~~ ligands wherein ~~the~~ each ligand is immobilized by attachment to a substrate in a single chamber, ~~or to multiple substrates wherein each substrate is contained in a separate chamber,~~ each immobilized ligand having a specificity for an antibody with a different hypervariable site;

(b) recovering a third sample containing the aptamer bound to target ~~molecules~~ molecule excluding the antibody bound to immobilized ligand;

(c) assaying the aptamer concentration in the third sample using the quantitative replicative procedure, so as to determine a difference in ~~an amount~~ a quantity of aptamer in the second sample and the third sample; and

(d) ~~obtaining a measure~~ determining a quantity of the antibody with the hypervariable region in the first sample from the difference.

32. (currently amended) A method according to ~~any one of claims~~ claim 30 ~~or 31~~, wherein the ligand is a specific antigen.

33. (original) A method according to claim 1, wherein the ligand is a reagent having the aptamer-binding characteristics of the target molecule.

34. (previously presented) A method according to any one of claims 30 or 31, wherein the antibody is IgE.

Claims 35-45. Cancelled.

46. (new) A method according to claim 26, wherein the aptamer binds to a constant region of the plurality of antibody molecules and wherein the immobilized ligand is the constant region of the antibody molecules for removing unbound aptamer from the sample.

47. (new) A method according to claim 31, wherein each ligand is a specific antigen.